

Guidelines for authors of the IBM Systems Journal

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It is important to have guidelines for the scope and breadth of papers being prepared for submission to a technical journal. This article provides information about the IBM Systems Journal and offers guidelines for prospective authors. The Systems Journal and its audience are described, and the processing of papers is discussed, along with suggestions for content and structure. To further aid the writer in preparing clear, complete papers of high quality, a bibliography of technical writing references is included.

The *IBM Systems Journal* is a quarterly technical publication intended primarily for systems and software professionals. The current circulation is over 100 000, making it one of the largest refereed journals in its field, with more than two-thirds of its readers outside of IBM and with about one-third outside the United States. The *Systems Journal* publishes papers by authors working in systems or programming areas of data processing. Contributions are welcome from all divisions and subsidiaries of IBM, and from Business Partners, customers, users, and other authors. The objectives of the *Systems Journal* are to:

- Inform and educate readers on systems and systems solutions
- Provide a bridge between computer science and computer applications
- Document technical advances involving IBM systems

- Encourage the use of advanced data processing technology
- Provide a forum for authors
- Encourage further research and development

What follows is a brief discussion of the usual content of a paper, the criteria for evaluating papers, how an author prepares a *Systems Journal* paper, how the editorial staff handles the paper, and the recommended structure of a paper. Appendix A offers specific suggestions for preparing a paper for submission.

Content

Papers published in the *Systems Journal* deal with such topics as computer systems and subsystems, operating systems, performance evaluation, systems analysis and management, simulation techniques, programming methods and languages, and applications. To determine whether a proposed topic is suitable for the *Systems Journal*, a prospective author should be aware of topics discussed in recent past issues. Inquiries about new topics are encour-

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aged. In addition, the editors invite papers on topics of special interest and frequently will solicit papers for a special subject or theme.

Editorial criteria. A paper may describe original work, discuss a new technique or application, present

Information presented in the Systems Journal is intended to be of practical use to the reader.

a survey of recent work in a given field, or provide tutorial information. Theoretical discussions and proposals are avoided; information presented in the *Systems Journal* is intended to be of practical use to the reader. The presentation should emphasize concepts and underlying principles, not details of implementation, and enough background information should be provided to orient the reader who is not a specialist in the subject under discussion. Tutorials concerning relevant areas are encouraged by the editorial staff.

Whatever the topic or treatment, the paper should be a contribution to the technical literature of data processing, having both current and lasting interest. Options and alternative designs should be discussed, with evidence to support final choices. The work should be shown in perspective by means of references to publications describing related work of others, both within IBM and outside the company. IBM products should be mentioned only as necessary for an understanding of the topic under discussion or to distinguish among different machines or programs.

A paper submitted to the *Systems Journal* should not have been published elsewhere, nor should it be submitted to another publication concurrently. Internal publication in IBM technical reports, and publication in the proceedings of conferences with very limited attendance, are not considered prior publication.

Other material in the *Systems Journal*. Nontechnical essays of general interest (such as this "Guidelines

for authors of the *IBM Systems Journal*") and surveys of literature on selected topics are included in some issues. The editors invite inquiries about submitting such material for publication. The *Systems Journal* also publishes reviews or abstracts of books and articles that the editors believe will be of interest to our readers. Short items such as technical notes are occasionally published to document some progress of work described in recently published papers.

Criteria for evaluating papers

Outlined below are the major criteria used in evaluating papers submitted to the *Systems Journal*.

Value. Is the paper an authentic contribution to knowledge? If not a report of original work, is it of significant educational value? Does the paper describe an innovative idea, approach, or application? If an overview or tutorial, does it present a fresh perspective or a new synthesis of knowledge? Has the information been published elsewhere?

Clarity. Does the paper follow an outline presented in the introduction? Is the paper easy to read? Is the main thought easy to understand? Are technical terms defined adequately? Is the use of jargon avoided? Is the writing style appropriate for the audience? Are figures and tables appropriately used?

Organization. Does the paper state what it is going to do, then do it, then summarize? Are the abstract, introduction, and conclusion adequate? Is the topic covered thoroughly and in logical sequence? Is irrelevant information omitted? Are alternatives for obtaining the result considered? Is evidence given to support points made? Is the discussion placed in perspective by means of references to related literature? Has the author demonstrated awareness of related work by others (the usual practice is to cite references in the paper)?

Paper preparation

Read. It is essential that a paper be written for the specific audience the author intends to reach. The first step in preparing to write for the *Systems Journal*, therefore, should be to review recent issues to get an idea of the relevance of the proposed topic for *Systems Journal* readers, as well as the most appropriate style of presentation. And, of course, the author should be familiar with other literature relating to the topic of the paper.

Outline. Before beginning to write, it is well to outline the proposed presentation. The outline need not be detailed, but it should list the main topics and subtopics to be covered. It is recommended that the author submit a detailed outline or abstract (preferably both) of the proposed paper before beginning

**The writing should be a clear, crisp,
logically organized exposition.**

to write, as the editors often can provide guidance that may save rewriting later on. The editorial staff is prepared to advise authors in planning and writing their papers.

Write clearly. The writing should be a clear, crisp, logically organized exposition of the topic. The subject addressed should be stated explicitly in the introduction. In a paper that describes original work, the author should make plain what is novel about the approach, or how the technique differs from what is already known or published. The author should identify experimental work or work based on existing products so the reader can reproduce the results or comprehend the value. It is important that the author supply enough information so the reader can readily follow and understand the discussion, but not so much that main points become obscured by superfluous detail. It is also important for the author to substantiate statements made in the paper. Many books and articles have been published to help authors write effectively. A few of them are listed in the General References section at the end of this article.

The writer should use standard written English; colloquial language and jargon should be avoided throughout the paper. Abbreviations and acronyms should be used sparingly and should be defined when first used. Mathematical notation can be used where it might increase the reader's comprehension, but the ability to grasp the subject should not require an understanding of high-level mathematics. Mathematical expressions should not be used in place of exposition. Detailed, complex, or specialized material, if needed to qualify the main text, is best placed in one or more appendices.

Illustrate. Diagrams, graphs, and tables that help clarify the text should be included where appropriate to aid the reader in gaining insight into the concepts discussed, or to summarize pertinent data. The use of lists of programming code should be avoided, unless a partial list is needed to illustrate an algorithm or methodology.

Review. After the first draft is finished, it should be read carefully for content and flow, as well as for typographical errors. It is a good idea for an author to circulate copies of the paper among colleagues for reactions and suggestions. Papers submitted for publication are evaluated in terms of value to the reader, originality, clarity and organization of the presentation, and supporting evidence and documentation. The previous section discussed these criteria, which the author might find useful in reviewing the paper before submitting it for publication.

Format. Papers are best created with a word processing program or a host-based editor for electronic transmittal to the staff of the *Systems Journal*. They should be prepared so that printed output will be double-spaced as a single column with wide margins. The length of a typical paper is approximately 30 pages of double-spaced material; acceptable papers may be shorter or longer, depending on the subject treated. The structure of the paper normally should not have more than three levels of subheadings, apart from the introductory section. More specific information on the recommended format for papers can be found in Appendix A.

The cited references and notes should be numbered sequentially as they are identified in the text. Additional references may also be included in a general references section. All illustrations (e.g., figures) and tables are redrawn professionally to *Systems Journal* specifications, so authors need submit only neatly prepared sketches with clear labels. As a general rule, the number of figures in a paper should not be greater than one for every two to three pages of text. A biographical sketch for each author should also be included at the end.

This article illustrates the general style and format used in the *Systems Journal*.

Processing

Papers submitted to the *Systems Journal* should have the appropriate clearances for publication. Editorial processing of a paper can begin before these clear-

Table 1 The structure of a typical *Systems Journal* paper

Authors	Order according to preference of the authors List only actual authors of the paper
Abstract	Briefly describe the work and its significance
Introduction	State the subject in its historical and scientific context Define technical concepts and terms Discuss key related work of others and use appropriate citations Outline the results presented in the body of the paper
Main body	Enlarge on the subject Treat underlying principles Discuss options with reasons Provide evidence to support final choices Candidly discuss failures as well as successful results Give performance data where possible Include appropriate diagrams and tables Offer recommendations for further work if pertinent
Concluding remarks	Summarize the work and its implications State the author's conclusions
Acknowledgments	Recognize contributions of others as appropriate
Appendices (optional)	Present detailed or complex data to support the main theme
References and notes	List publications cited in the paper, using the correct format Use superscript numbers for citations, in the order of appearance Present notes not included in the main text

ances have been obtained, but uncleared material cannot be processed further than internal reviewing.

Reviewing and refereeing. When a paper is received, it is reviewed by the editorial staff to make sure the topic and treatment are appropriate. It is then reviewed by three or more independent referees, who, in the judgment of the editors, are professional peers of the author. The editors usually select both IBM and non-IBM experts as referees. To ensure the objectivity and integrity of the refereeing process, the referees remain anonymous to the author. They advise the editors of the technical merit of the work and the quality of the presentation.¹⁻³ Often they suggest ways in which the presentation can be strengthened. The referees' comments and suggestions are forwarded to the author, who is asked to consider them on their merits and, if necessary, revise the paper accordingly.

If recommended for publication by the referees, and after any revisions have been made, the paper is edited for publication and returned to the author for approval of any changes. The paper can then be sent for typesetting.

Processing time. On the average, ten months are required for refereeing, revising, editing, typesetting,

and printing. This production time starts once the paper is deemed acceptable for technical review by referees. Authors receive a first-run copy of the *Journal* issue in which their papers are published. In addition, individual reprints are provided and are available from IBM. The authors usually receive a generous number of these reprints for their personal use.

Paper structure

The basic structure of a typical paper is outlined in Table 1. When a paper is submitted, the title, author's name, and abstract should appear first. The title should be a concise description of the topic being treated.

Authors. The ordering of the list of authors is at the option of the authors. Only authors of the paper should appear; contributors to the work who did not contribute to the actual writing of the paper should be mentioned in the acknowledgments. Team or group names should not be used.

Abstract. The abstract, which will be reprinted by various documentation services,⁴ should provide enough information so that the reader can assess a level of interest in the full paper. It should serve as a

brief overview of the contents. In one paragraph of two hundred words or less, the abstract typically answers such questions as:

- What was done and how was it done? For example, if a problem was solved, state what it is and describe in what manner it was investigated.
- What is the author's unique approach or important contribution?
- What is the principal result or a typical application?

Introduction. The main body of the paper is preceded by an introduction, perhaps one or two pages long, which clearly states what is to be discussed in the paper, such as a problem being considered and the author's solution. The historical and scientific context of the problem should be established, usually with the aid of citations that refer to previous or related work of others. In addition, the introduction defines major technical concepts and terms used in the paper, and it briefly explains the resolution of the problem as presented in the discussion that follows. It is helpful if, at this point, the author briefly explains how the main discussion is organized.

Main body. Following the introduction, the main discussion enlarges on the subject in terms of underlying principles and interrelationships with similar or related topics. It discusses design options that may have been considered in reaching a solution to the problem, providing a rationale for the options along with evidence (such as performance data) to support final choices. The author should candidly discuss failures as well as successful results. Diagrams and tables should be used as appropriate to support and illustrate main points and summarize results. Recommendations for further or related work can be included if relevant.

Concluding remarks. The main discussion is followed by the author's concluding remarks, which can be a summary of the work and its implications, a statement indicating what the author has concluded as a result of the work, or both, and perhaps some discussion of future work.

Acknowledgments. If the author wishes to acknowledge the help or support of others, the conclusion or summary can be followed by a section entitled Acknowledgments.

Appendices (optional). One or more appendices can be included after the acknowledgments or body of

the paper, if necessary, to present detailed or technical information that is relevant but not essential to the main discussion.

Cited references and notes. The cited references, and footnote-type material, are listed at the end of the paper. They are numbered serially in the order in which they are called out in the text. It is important that authors submit full and accurate literature citations. The use of a numbered note is illustrated in Reference 4 in this article. Citations of periodicals include the author's initials and last name, the title of the paper, the full name of the periodical with volume and number if appropriate, the beginning and ending page numbers, and the year of publication, with the month if given. Several examples of the correct format are shown under the sections Cited References and Note and General References at the end of this article.

Book citations include the author's initials and last name, the title of the book, the editor's name if appropriate, the publisher's full name and location, the year of publication, and, if applicable, chapter and page numbers. Several examples of the correct format are shown under General References.

Occasionally, as an aid to readers who may want more information on the topic under discussion, an author provides a list of publications not specifically cited in the paper. Such publications are listed without numbers, under the heading General References, after the list of cited references.

Conclusion

The *IBM Systems Journal*, a technical publication for professionals involved in the development and use of computers and software, publishes original papers by authors on a wide range of systems and programming topics. This article has described the *Systems Journal* and its contents, it has reviewed the structure and preparation of a typical paper, and it has described how papers are evaluated and processed for publication.

Papers published in the *Systems Journal* are intended not only to inform readers, but to provide a bridge between computer science and applications, to demonstrate IBM's technical involvement and commitment, to provide a forum for authors, and to encourage the development and use of advanced data processing technology.

Figure 1 Suggested tags (in parentheses) for IBM Publishing Systems BookMaster

1. Heading tags (:h4., :h5., :h6.)
2. Paragraph tag (:p.)
3. List tags (:ul., :ol., :li., :eul., :eol.)
4. Italic highlighting (:hp1., :ehp1.)
5. Bold highlighting (:hp2., :ehp2.)
6. Reference superscripts
 - Superscript that appears in the text
(:sup. :liref form = textonly refid = NAME1. :esup.)
Where NAME1 is an arbitrary name used to connect the superscript reference number with the data that will appear in the cited reference section. Some authors choose to use the cited author's name for clarity of connection.
 - Data in the cited reference section
(:ol.
 :li id = NAME1. followed by the details of the reference
 ...
 :eol.)
Where the cited reference list consists of elements in an ordered list.

Acknowledgment

This paper is based on a document originally written by D. T. Sanders when he was an associate editor of the *IBM Systems Journal*.

Appendix A: Recommended format for papers

The following suggestions are offered to provide a common format for papers that the editors review, have refereed, and publish. They are intended to make the document easily readable, allow space for insertion of editing and review comments, and meld the document into the *Journal's* production system. Should they present a problem for your writing process or text preparation system, then the editors defer to your judgment on format. Figure 1 contains suggested formatting tags when the IBM Publishing Systems BookMaster product is used to prepare the paper.

Printed text. The following description applies in general to the entire paper. Tables may be included in the text using single-spaced lines or treated as figures, discussed in the next section.

1. Single-column format
2. Double-spaced lines
3. A maximum of three heading levels
4. Trademarks clearly identified when first used
5. IBM product names spelled out when first used
6. Footnotes and references arranged as a single consecutively numbered group in the order of appearance in the text

Figures. All figures should be consecutively numbered. Explanatory text describing the figure should appear in the body of the paper, keeping the caption text to a minimum.

1. Hand-drawn figures are acceptable. All artwork for the *Systems Journal* is redone by outside contractors. Ensure that any text within a figure is legible and the placement of text near graphics is clear. Clarity will avoid the necessity of later revision.
2. All illustrations and tables, with captions, should be on separate pages at the end of the paper. These items are processed independently from the text.

Electronic submission. Machine-readable text is the preferred form of submission.

1. IBM authors should submit their text using the internal IBM network (VNET), and others should mail a PC diskette containing ASCII-form text—such as that obtained by exporting or extracting from a word processing program—along with a formatted and printed version on paper. Figures should be mailed in hard copy form by all authors, even if the figures are in electronic form.
2. Current mailing addresses of the editor and associate editors of the *IBM Systems Journal* can be obtained by contacting the Editor, *IBM Systems Journal*, Armonk, NY 10504. Internal IBM network users can obtain node and user identification addresses of the editors by accessing the internal telephone directory.

Cited references and note

1. B. K. Forscher, "Rules for Referees," *Science* **150**, No. 3694, 319-321 (15 October, 1965).
2. B. D. Shriver, Editor-in-Chief's Message, "The Benefits of Quality Refereeing," *Computer* **23**, No. 4, 10-16 (April 1990).
3. A. J. Smith, "The Task of the Referee," *Computer* **23**, No. 4, 65-71 (April 1990).
4. Abstracts or reviews of *Systems Journal* papers are published by 15 documentation services, including several in foreign countries. Publications in which these abstracts and reviews appear are listed on the inside back cover of each issue of the *Journal*.

General references

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